Benchtop Optical Power Meter Q8221

400 to 1750 nm

Benchtop optical power meter

of high measurement accuracy

Brief description

Optical Power Meter Q8221 (Advantest) provides two plug-in slots and can be fitted with five different optical sensors or nine different sources. The optical sensors cover the wavelength range from 400 nm to 1750 nm and the power range from –93 dBm to +27 dBm. A continuous wavelength sensitivity compensation allows the sensors not only to be used at specific wavelengths, but throughout the specified range. Compensation is made automatically following selection of the wavelength by the user.

LEDs and LDs are the sources for all three optical windows. The high measurement accuracy and the extremely low polarization dependence make the Q8221 an ideal tool for demanding measurement tasks. A special adapter allows a return loss of at least 45 dB to be obtained even with PC polished FC connectors.

Thanks to its high speed of 20 measurements per second, Q8221 is suitable for a large variety of applications. Whether it is used as a two-channel power meter or as a combined power meter/source, its high measurement accuracy and source stability always ensure reliable measurement results.

Main features

- Two independent channels
- High measurement accuracy of 2.5% (with Q82208)
- Versatile measurement capabilities through various sensors and plug-in light sources

Specifications in brief (basic unit)

Basic unit

Display	2 x 5 ½-digit
Resolution	0.001 dB (measurement in dBm)
Measurement rate	20 measurements/second
Measurement functions	power measurement in W and dBm, dBr (relative), etc
Averaging	2 to 256 values, moving average value
Offset and zero adjustment	automatic upon keystroke
Remote control	IEC 625 (IEEE 488)
Power supply	100 to 240 V, 48 to 66 Hz, 50 VA
Dimensions (W x H x D); weight	212 mm x 88 mm x 360 mm; 4 kg

Optical sensors

Optical Sensor	**Q82214**	**Q82215**	**Q82216**	**Q82227**	**Q82208**	**Q82232/Q82233**[1]
Wavelength	400 to 1100 nm	800 to 1750 nm	800 to 1750 nm	800 to 1750 nm	800 to 1700 nm	900 to 1650 nm
Level	–80 to +17 dBm	–60 to +10 dBm	–77 to +10 dBm	–80 to +27 dBm	–94 to +10 dBm	–94 to +10 dBm
Sensor material	Si, 8 mm dia.	Ge, 8 mm dia.	Ge, 5 mm dia., cooled	InGaAs, cooled	InGaAs, cooled	InGaAs, cooled
Measurement accuracy (with pulsed light)	±3% (±4%) 780 nm, 0 dBm	±3% (±4%) 1300 nm, 0 dBm	±2.5% (±3.5%) 1300 nm, 0 dBm	±2.5% (±3.5%) 1550 nm, 0 dBm	±2.5% (±3.5%) 1300 nm, 0 dBm	±2.5% (±3.5%) 1550 nm, 0 dBm
Polarization	—	typ. 0.03 dB (pp)	typ. 0.03 dB (pp)	typ. 0.05 dB (pp)	typ. 0.015 dB (pp)	0.003 dB (pp)/ 0.005 dB (pp)
Adapter for connection of sensors (additionally required)	Q82202	Q82202	Q82202	Q82203	—	Q82203

Extras
Adapter Q82202 for connection of sensors, 19" Rack Adapter A02463

Adapters for connectors

	Q82202	**Q82202**	**Q82202**	**Q82203**	**–**	**Q82203**
FC	A08012	A08012	A08012	Standard	Standard	A08161
SC	A08090	A08090	A08090	—	—	A08161
ST	A08096	A08096	A08096	—	—	A08162
D4	A08013	A08013	A08013	—	—	A08163
SMA $^1/_8$"	A08028	A08028	A08028	—	—	—
DIN	A08029	A08029	A08029	—	—	—
FC >45 dB ORL	—	—	—	A08328	A08328	—

Plug-in light sources

Light Source	**Q81201**	**Q81202**	**Q81203**	**Q81204**	**Q81205**
Type	LED	LED	LED	LED	LED
Wavelength	850 ±25 nm	1310 ±40 nm	1550 ±30 nm	1310 ±10 nm	1550 ±10 nm
Half-value width	55 nm	160 nm	210 nm	20 ±5 nm	20 ±5 nm
Level	–15 ±1 dBm	–20 ±1 dBm	–43 ±1 dBm[1]	–35 ±1 dBm	–53 ±1 dBm[2]
Drift 1 h/8 h	0.02 dB/0.2 dB	0.02 dB/0.2 dB	0.04 dB/0.2 dB	0.02 dB/0.2 dB	0.04 dB/0.2 dB
Modulation		270 Hz, 2 kHz, 4 kHz, ±0.1% each; duty cycle 2 (±10%; 270 Hz: ±5%)			
Type of connector	FC	FC	FC	FC	FC

Light Source	**Q81206**	**Q81207**	**Q81211**	**Q81212**
Type	LED	LED	FP-LD	FP-LD
Wavelength	1300 ±30 nm	1550 ±30 nm	1310 ±10 nm	1550 ±20 nm
Half-value width	100 nm	140 nm	5 nm	10 nm
Level	–14 ±1 dBm[1]	–27 ±1 dBm[1]	0 ±1 dBm[1]	0 ±1 dBm[1]
Drift 1 h/8 h	0.02 dB/0.2 dB	0.02 dB/0.2 dB	0.05 dB/1 dB	0.05 dB/1 dB
Modulation		270 Hz, 2 kHz, 4 kHz, ±0.1% each; duty cycle 2 (±10%; 270 Hz: ±5%)		
Type of connector	FC	FC	FC	FC

1) ORL ≥45dB

2) At SM 10/125 µm, otherwise GI 50/125 µm.